Province of
British Columbia
Ministry of
Health

DIVISION OF TUBERCULOSIS CONTROL

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FOREWORD

This report presents statistical and epidemiological information about tuberculosis in British Columbia derived from the activities of the Division of Tuberculosis Control during the calendar years, 1986 and 1987. The report covers the following aspects: hospital admission for tuberculosis, treatment of active tuberculous disease as well as chemoprophylaxis, an analysis of active cases and tuberculosis-related mortality; case-finding programmes are analyzed. Information respecting North American Indians refers only to Registered (Status) Indians, who constitute a distinct administrative group for which health care is provided, for the most part, by the Federal Government through Medical Services, Pacific Region, Health and Welfare Canada.

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Director.

DIVISION OF TUBERCULOSIS CONTROL

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DIRECTOR'S REPORT
DIVISION OF TUBERCULOSIS CONTROL
E.A. Allen, M.B., F.R.C.P.(C)

The Division of Vital Statistics provides a valuable statistical service to the Division of Tuberculosis Control. Summaries of all medical records including notifications, follow-up reports, active case registry and treatment records are processed by the computer system monthly, by the Division of Vital Statistics. In addition, the Division of Vital Statistics arranges to provide annual listings of all the known cases of tuberculosis and selected non-tuberculous cases to the Tuberculosis Registry, as well as a number of special listings separately for tuberculous and non-tuberculous cases. B.C. Systems Corporation assists in the analysis of the data.

The major sections of this report encompass the following subjects: **PLACE OF TREATMENT, DRUG TREATMENT (including CHEMOPROPHYLAXIS), BCG VACCINATION, DIAGNOSTIC AND SURVEY CLINICS, ACTIVE CASES (new and reactivated), MORTALITY, AND ACTIVE TUBERCULOSIS AMONG REGISTERED NATIVE INDIANS.**

NOTE: An analysis of **Contact tracing** has usually been included in this report. This was not available for this report.

1986/1987
TUBERCULOSIS IN-PATIENT SERVICE
(Tables 1 - 3A)

The in-patient service referred to in this report is provided by a specially designed ward dedicated to tuberculosis treatment and under the responsibility of the Vancouver General Hospital (T.B. Ward, VGH). It is housed in the Willow Chest Centre and offers 25 beds. Patients with active tuberculous disease are also admitted to other wards in the Vancouver General Hospital and other general hospitals in the Province. These other in-patients are in a minority and are usually admitted for short periods. Their numbers are not included under "admissions" or "discharges" in this section of the report but are included in tables 4 to 5A "Place of Treatment of Active Tuberculosis...".

ADMISSIONS:

The total number of admissions to the T.B. Ward, VGH, during the calendar years 1986 and 1987 was 158 and 134 respectively, the last number representing a moderate drop compared with the previous four years. Of this number of admissions, 113 and 107 respectively were for active tuberculosis.

Since 346 persons were diagnosed as having active tuberculosis during 1986, the 88 persons (represented by the 113 "admissions"above) with active tuberculosis, admitted in the year, represent 25.4% of the total. (91/301 = 30.2% in 1987)

Of the 113 admissions, (107 in 1987) 99 (101 in 1987) had primarily pulmonary tuberculosis whereas 14 (6 in 1987) had non-pulmonary disease. The ratio of male to female admissions was 105 to 53 (in 1987, 86 to 48), i.e. 66 percent (64 percent in 1987) of admissions were male. A disproportionate number of the admissions were represented by the following ethnic groups:

	1986		1987	
	#	%	#	%
Native Indian *	29	18	24	18
Status	20		17	
Non-status	9		7	
Chinese	19	12	23	17
East Indian	10	6	12	9
Total admissions	158	100	134	100

*Status (Registered) Indians represent approximately 2.3% of the population of B.C.

These figures are similar to those obtained for the years 1984/85.

DISCHARGES:

An analysis of the discharges from T.B. Ward, VGH in 1986, which totalled 159 (134 in 1987) (including all diagnostic categories) shows that 144 or 91 percent (115 or 86% in 1987) occurred before the end of three months. This maintains the trend toward shorter hospitalization. The remaining 14 discharges (17 in 1987) occurred before six months. There were 7 deaths (2 in 1987). Total patient-days spent in hospital was 6,763 (6,263 in 1987). The average length of stay for a person with active tuberculosis was 47 days (50 in 1987). Patients with active tuberculosis contributed a total of 5,485 (5,330 in 1987) patient-days in hospital.

Of the 159 discharges in 1986, 25 or 16% represented re-admissions; the corresponding number of reactivations for 1987 was 20/134 or 15%.

Patients with other mycobacterial disease, non-tuberculous disease and inactive tuberculosis accounted for 1,278 (933 for 1987) additional patient-days or 19 percent (15 percent in 1987) of the total patient-days provided by all discharges from this ward.

Table 3 deals with various types of discharges from the TB Ward.

In Tables 3 and 3A, dealing with the various types of discharge from hospital, the two categories "against medical advice" and "disciplinary" should be understood to represent an underestimate of those who leave earlier than is considered wise by the responsible physician, based on a variety of practical, legitimate concerns. In an effort to maintain

rapport with such patients, a physician will often reluctantly accede to an earlier discharge "on medical advice".

Seventy-two (68% in 1987) percent of the pulmonary cases (excluding pleurisy) admitted to T.B. Ward, VGH, were positive on smear, underlining the fact that a major concern was the temporary isolation of infectious patients during the early phase of treatment to reduce the risk of transmission of disease to their close contacts - often young persons or children in the same house. The latter is far from being the only concern and in persons admitted there is usually a multiplicity of problems including those arising from poor compliance, drug reaction, drug resistance, associated illness, drug and alcohol abuse and socio-economic factors.

In summary, a high percentage of those admitted to the Tuberculosis Ward in the Vancouver General Hospital are confirmed cases of active infectious pulmonary tuberculosis. Most are male, they belong to all age groups over the age of 20 years and a disproportionate number are Native Indians. Their stay is relatively short (7 weeks) being the same as in the previous two years. The decline in the role of expensive hospital care is underscored by the fact that only 25 percent (30 percent in 1987) of all persons with active tuberculosis diagnosed in 1986 was admitted to the Special T.B. Ward, Vancouver General Hospital, the same proportion as in the previous two years. Some were treated, usually for short periods, in other general hospitals.

Of the pulmonary tuberculous cases (excluding those who were diagnosed at death and were, therefore, not treated), 60% in 1986 were treated entirely at home. Forty-one percent of those treated entirely at home with pulmonary tuberculosis were positive on smear, i.e. were potentially infectious. These latter patients were judged to be sufficiently responsible to be permitted to remain at home; also, the home circumstances were judged suitable for this approach.

CHEMOPROPHYLAXIS
(Tables 6 and 6a)

On December 31, 1986, 639 residents of British Columbia were on preventive drug treatment with isoniazid for a variety of indications related to their increased risk for the development of active tuberculosis. Six hundred and ninety-two were on similar therapy as of December 31, 1985, and 574 in 1987.

Those on chemoprophylaxis had the following approximate ethnic distribution (based largely upon country of origin):

	1986		1987	
	Number	Percent	Number	Percent
White	340	53	277	48
Chinese	92	14	99	17
East Indian	68	11	71	12
Vietnamese	1	0	-	-
Japanese/Korean	7	1	8	1
Native Indians (Status)	80	13	91	16
" " (Non-Status)	15	2	13	2
Other	36	6	15	3
	639	100	574	100

Table 6 shows that the most common indication for chemoprophylaxis was evidence of infection in a contact of an active case though the group of positive reactors without identified contact came a close second. The latter represent for the most part children and young adults.
Eighty-three persons with inactive tuberculosis were given prophylaxis in 1986, the same number as in the previous year; seventy-nine persons received prophylaxis in 1987. It is assumed that many thousands of persons in British Columbia have had tuberculosis and either have never had treatment or been inadequately treated. Such persons are at increased risk of reactivation and are candidates for preventive isoniazid treatment. In the file of the Division of TB Control for B.C. in 1987, 38,321 persons are recorded as having inactive TB (30,270) or presumed (pulmonary) TB inactive (8,051). Of these 15,872 of those with inactive TB and 6881 of those with

presumed TB inactive are estimated to have had no treatment or treatment was less than adequate or details of their treatment are not known. It is possible therefore that a total of 22,753 persons with inactive TB are in the untreated or poorly treated category. If the aim of the program is to consider all under the age of 45 years as possible candidates for chemoprophylaxis, the (estimated) total drops to 4,523. Given the number actually offered chemoprophylaxis in 1986 and 1987 (an average of 81 per annum) it can be estimated that 1.8% of those eligible within this risk category are being given preventive treatment each year. The fact that only 83 and 79 persons with inactive pulmonary tuberculosis were offered such treatment in 1986 and 1987 respectively underscores the problems associated with this approach.

Table 6A illustrates the outcome in those discontinuing chemoprophylaxis during 1986/1987. The number of patients discontinuing chemoprophylaxis during 1986 was 805 (871 in 1987). Five hundred and fifty or 68% of these (545 or 63% in 1987) completed the course offered them. Of the 550 who discontinued therapy on medical advice, 481 or 87% (502 or 92% in 1987) had received more than six months treatment. The number of patients whose treatment was incomplete was 255 (33%) (325 or 37% in 1987). One hundred and thirty-eight or 17% (178 or 20% in 1987) of the total number who ended their chemoprophylaxis in 1986, failed to complete therapy because of poor compliance with therapy and a further 56 or 7% (89 or 10% in 1987) failed because of actual or suspected drug reactions.

It is interesting to compare the failure rate to those receiving full chemotherapy for active disease (Table 8). The latter have a much lower proportion of drop-outs which probably reflects a much higher level of motivation on the part both of the physicians and nurses and the patients. A similar difference was seen in 1984/85 (See Annual Report) and means that the failure rate among those on chemoprophylaxis may not be easy to overcome.

ANTI-TUBERCULOSIS TREATMENT
(Table 7,7A,8)

On December 31st, 1986, 219 (186 in 1987) persons were on antimicrobial chemotherapy for active tuberculosis. Seventeen or 8% (16 or 9% in 1987) were under the age of fifteen; 145 or 66% (125 or 67% in 1987) were between

the ages of fifteen and sixty-four and 57 or 26% (45 or 24% in 1987) were aged sixty-five year or older. 98 or 45% (75 or 40% in 1987) came from the City of Vancouver.

An additional 10 persons were receiving antimicrobial therapy for mycobacteria other than tuberculosis in 1986 (15 in 1987).

Table 8 illustrates the outcome of chemotherapy among those with active tuberculosis who finally discontinued treatment during 1986 and 1987, in terms of the reason for discontinuation of therapy and its total duration. Total duration in this sense is not necessarily synonymous with the duration of adequate chemotherapy. The number of patients discontinuing treatment during 1986 was 309 (in 1987, 289) of which 258 or 83% (in 1987, 257 or 89%) completed the course on medical advice and, therefore, in most cases, can be presumed to have been compliant. 205 or 79% of the 258 in 1986 (177/257 or 69% in 1987) had at least nine months treatment. The number of patients who did not complete treatment in 1986 was 52 or 17% (32 or 11% in 1987); 13 or 4% of the 309 in 1986 (13/289 or 4% in 1987) were uncooperative or lost to follow-up.

B.C.G. VACCINATION
(Table 9)

During 1986 and 1987, 291 and 535 persons respectively received a B.C.G. vaccination. Of the 291, 84% (94% in 1987) were Registered Indians, the great majority of whom represented newborn children, in compliance with the policy of Medical Services, Pacific Region (Federal).

All but 17 of the newborn Native Indians (Registered) receiving B.C.G. were given by Medical Services. Those newborns given BCG by Medical Services, (173 in 1986 and 382 in 1987), are assumed to be registered and 'on reserve'. In 1986, 1199* and, in 1987, 1227* newborn Native Indians were registered 'on reserve', giving a percentage compliance with this recommended (but voluntary) policy of 14 and 31 percent respectively. Given the past level of BCG coverage of this group, this must be considered an abnormally low rate of compliance.

* Information provided by Dept. of Indian and Northern Affairs, Pacific Region, B.C.

DIAGNOSTIC AND SURVEY CLINICS

(Table 10)

The number of patient visits to the clinics of the Division of Tuberculosis Control is given in the following table illustrating the trend over the last five years.

PATIENT VISITS TO CLINICS OF T.B.CONTROL, B.C.

1983	-	35,774
1984	-	45,539
1985	-	47,016
1986	-	46,658
1987	-	46,656

In Table 10, the yield in terms of various abnormal chest conditions, for the survey chest x-ray services of the Division is detailed for 1986 and 1987 separately. The yield for new pulmonary tuberculous cases of various kinds - active, inactive and presumed tuberculous (apical scarring) in 1986 was 73 persons or a yield of 1005 per 100,000 persons x-rayed. (1987 - 84 or 699 per 100,000). The number of persons with active tuberculosis was 9 for a rate of 123 per 100,000. (1987 - 9 or 75 per 100,000).

The screening program for tuberculosis in the province is divided into two parts: (A) those who are presumably well and who are employed in positions in which there is a perceived risk of exposure to tuberculosis (e.g.health workers) or in which it is highly desirable that they not infect others especially the young (e.g.teachers) and where the circumstances are such that transmission might be promoted (e.g.schools, institutions, correctional centres, care facilities for elderly). The candidates under this heading belong to groups which are clearly defined by policy and listed.

(B) includes a miscellaneous collection of persons for whom screening is requested. It includes those self-referred persons with symptoms and contacts of active cases of tuberculosis. Thus in this group one might expect to find a higher yield of active tuberculosis or tuberculin reactors. Ordinarily, only those with a reaction to tuberculin are given a chest x-ray. The relatively high yield of the x-ray screening program reflects this pre-selection by tuberculin test.

ACTIVE CASES
(Tables 12 - 21)

For purposes of this report, "active cases", when unqualified, will refer to persons with active tuberculosis who were diagnosed during the current year; it will exclude those persons diagnosed active in previous years but who have remained continuously active into the current year. The term "new active" will refer to those persons diagnosed as having active tuberculosis during the current year but who were not known or suspected to have had an active episode of tuberculosis prior to the current year. The term "reactivated" includes two groups of persons (i) those with a documented previous episode of active tuberculosis (Reactivation Type I) and (ii) those with evidence of healed disease of such a typical nature that it leads to a presumption of inactive tuberculosis (Reactivation Type II). Evidence of the latter usually consists of a chest x-ray showing apical fibrosis or scarring in a person with a positive tuberculin test. The numbers belonging in these various categories are summarized in Summary-Table A.

ACTIVE CASES

SUMMARY - TABLE A

Cases diagnosed active in:	Number (1986)	Percent (1986)	Number (1987)	Percent (1987)
New active: not known to be previously active	296*	86%	254**	84%
Reactivated:	50	14%	47	16%
I. Previously documented active T.B.	(35)	(10%)	(32)	(10.7%)
II. Previously presumed T.B.inactive	(15)	(4%)	(15)	(5.2%)
TOTAL	346*	100%	301	100%
Provincial Rate: per 100,000	11.9		10.2	

* Includes one "new active" case arriving from Manitoba as continuously active, diagnosed in 1986.

** Includes two "new active" cases arriving from Alberta and Ontario as continuously active, diagnosed in 1987.

Gender distribution:				
Male	206	60%	169	56%
Female	140	40%	132	44%
TOTAL	346	100%	301	100%
Respiratory (including pleurisy)	276	(80%)	234	(78%)
Non-respiratory	70	(20%)	67	(22%)
TOTAL	346	(100%)	301	(100%)

Table 13 shows the annual incidence rate between 1981 and 1987. The downward trend in annual incidence rate has continued from 14.3 in 1981 to 10.2 in 1987. Males continue to dominate in number and rate.

ORIGINAL INVESTIGATIONS
(Table 11)

(This refers to test procedures other than simple clinical examination by history and physical examination).

The agency providing the initial investigation (usually an x-ray) leading eventually to the diagnosis of active tuberculosis was analyzed. This investigation did not necessarily result in a correct diagnosis of active tuberculosis being made at that time but it started the process towards the diagnosis, which in many instances was only later confirmed by other physicians or investigations, quite commonly within the Division of T.B. Control.

Some of the results for 1986-87 respectively are as follows:

(i) In 11.0 and 15.6 percent of cases, the initial diagnostic investigation was undertaken by one of the units of the Division in the course of contact tracing, survey and surveillance programs and in the investigation of persons referred from outside physicians or agencies or on self-referral. Given the limited size and availability of the Division's regular diagnostic facilities relative to the total number of physicians and hospitals in the province, this represents a significant contribution. The relative contribution of the specialized tuberculosis services to the initial investigation has always been of this magnitude.

(ii) In 2.3 and 0.3 percent of cases, initial investigation was undertaken by one of the units of the Indian Health Services.

(iii) Private radiologists and the x-ray departments of general hospitals along with other forms of investigation undertaken in general hospitals either as in-patients or out-patients provided the initial diagnostic investigation of the majority of persons diagnosed as having active tuberculosis during the current year (81.5 and 76.1 percent). Often the diagnosis had not been suspected clinically.

(iv) The role of diagnostic resources other than x-ray is illustrated by the fact that 17.0 and 19.3 percent of patients were diagnosed by this means. Not infrequently the diagnosis was an unexpected finding at histology.

(v) 5.2 and 8.0 percent of the patients were first diagnosed at or after death. (autopsy and postmortem bacteriology or histology). (The pattern was similar in 1984-85.)

The substantial role the Division plays in contact surveys, surveillance of persons at increased risk, screening of selected employment groups and as a consulting service represents its contribution towards early diagnosis.

The major contribution towards initial diagnostic testing must, of necessity and for logistical reasons, be played by the broad body of physicians of this province. This fact is well illustrated by the above analysis. More particularly it points up the opportunity which exists for all physicians to assist in the task of early detection by including this disease in the differential diagnosis when appropriate. It is the duty of the Division, the Health Officers of the Province and medical educators to make sure that all practising physicians understand when it is appropriate to consider the diagnosis and what investigations should be done.

BACTERIOLOGICAL CONFIRMATION OF ACTIVE TUBERCULOSIS
(Summary Tables B and B(a)

During 1986, of the respiratory cases, where the bacteriological status was known, 84 percent (85% in 1987) were bacteriologically confirmed and 54 percent (53% in 1987) yielded a positive direct smear for tubercle bacilli. Similarly, 84 percent (83 in 1987) of all cases, where the bacillary status was known, were bacteriologically confirmed in 1986. In 8 percent of the total of 346 active cases reported in 1986, (10% in 1987) the bacillary status was not known or was not determined. Most such instances represent post mortem or histological diagnoses in which a suitable specimen for bacteriology was not obtained and those forms of the disease from which it is commonly difficult to isolate tubercle bacilli e.g. primary disease. In summary, a high percentage of cases was confirmed bacteriologically.

It is important that there be bacteriological re-confirmation before deciding on reactivation; otherwise, this designation may be entertained too lightly in cases of minor or doubtful alteration of shadows on x-ray or after the occurrence of certain suggestive symptoms. The proportion of reactivated cases with positive bacteriology illustrates that the latter tendency was not prevalent.

Native Indians presented a similar rate of positive bacteriology to that applying to the total number of active cases thereby confirming that the same criteria for diagnosis were applied to this group as to the rest of the population.

Tables 5, 5A, 12, 12A, 17A, and 17B, all give further details of the bacillary status of various categories of patient or diagnosis.

For 1986, 267 cases were confirmed bacteriologically by either smear or culture or both (excluding cases where the organism, morphologically or by staining characteristics resembling a mycobacterium, was only observed in a histological specimen). This gives a rate for bacteriologicaly confirmed cases of 9.2 per 100,000. The corresponding figures for 1987 are 224 or 7.7 per 100,000.

BACTERIOLOGICAL CONFIRMATION OF ACTIVE T.B. 1986
SUMMARY - TABLE B

by Anatomical Site:	Pos. smear	Pos. cult. only	Culture/ and/or smear	NUMBER	PERCENT
RESPIRATORY (incl.pleurisy)					
Bacillary[1]	142*	78	220	220	80%
Non-Bacillary				42	15%
Sub-TOTAL				262	95%
Bacillary status not known or not determined				14	5%
TOTAL				276	(100)
NON-RESPIRATORY Bacillary[1]	15	32	47	47	67%
Non-Bacillary				10	14%
Sub-TOTAL				57	81%
Bacillary status not known or not determined				13	19%
TOTAL				70	(100)
ALL CASES					
Bacillary[1]				267	77%
Non-Bacillary				52	15%
Sub-TOTAL				319	92%
Bacillary status not known or not determined				27	8%
TOTAL: ACTIVE CASES				346	(100)

* includes 8 cases of positive smear only.

[1] Includes all types of specimen - sputum, biopsy, gastric lavage, pleural fluid, etc.

BACTERIOLOGICAL CONFIRMATION OF ACTIVE T.B. 1986
SUMMARY - TABLE B(a)(continued)

by Extent and Type of Respiratory Disease	TOTALS	# TESTED	BACILLARY NUMBER	BACILLARY PERCENT**
Primary	25	21	13	62%
Minimal	92	91	70	77%
Moderately Advanced	80	79	75	95%
Far Advanced	44	39	39	100%
Pleurisy	19	17	10	59%
Tuberculoma	-	-	-	-
Miliary	15	14	12	86%
Silico-Tuberculosis	1	1	1	100%
Extent Unknown	-	-	-	-
	276*	262	220	84%
by Site of Non-Respiratory Disease				
Meninges & Central Nervous System	3	2	1	50%
Intestines & Peritoneum	6	6	4	67%
Bones & Joints	5	5	5	100%
Skin	3	2	1	50%
Lymphatic System	42	34	30	88%
Genito-Urinary System	7	6	4	67%
Multiple Sites & other Organs	4	2	2	100%
	70	57	47	82%
by Prior Status for T.B.				
New Active	296	270	227	84%
Reactivated (incl. both "Prev. Act." & Presumed T.B.")	50	49	40	82%
	346	319	267	84%
by Native Indian Status (Registered)	59	57	49	86%

* includes 14 cases in which bacteriology status was not known or not determined.

** percent of tested.

BACTERIOLOGICAL CONFIRMATION OF ACTIVE T.B. 1987
SUMMARY - TABLE B (continued)

by Anatomical Site:	Pos. smear	Pos. cult. only	Culture/ and/or smear	NUMBER	PERCENT
RESPIRATORY (incl.pleurisy)					
Bacillary[1]	116*	70	186	186	79%
Non-Bacillary				34	15%
Sub-TOTAL				220	94%
Bacillary status not known or not determined				14	6%
TOTAL				234	(100)
NON-RESPIRATORY Bacillary[1]	9	29	38	38	57%
Non-Bacillary				12	18%
Sub-TOTAL				50	75%
Bacillary status not known or not determined				17	25%
TOTAL				67	(100)
ALL CASES					
Bacillary[1]				224	74%
Non-Bacillary				46	15%
Sub-TOTAL				270	90%
Bacillary status not known or not determined				31	10%
TOTAL: ACTIVE CASES				301	(100)

* includes 4 cases of positive smear only.

[1] Includes all types of specimen - sputum, biopsy, gastric lavage, pleural fluid, etc.

BACTERIOLOGICAL CONFIRMATION OF ACTIVE T.B. 1987
SUMMARY - TABLE B(a)

by Extent and Type of Respiratory Disease	TOTALS	# TESTED	BACILLARY NUMBER	BACILLARY PERCENT**
Primary	17	11	3	27%
Minimal	101	98	78	80%
Moderately Advanced	74	72	68	94%
Far Advanced	21	20	20	100%
Pleurisy	7	6	5	83%
Tuberculoma	1	1	1	100%
Miliary	11	11	10	91%
Silico-Tuberculosis	1	1	1	100%
Extent Unknown	1	-	-	-
	234*	220	186	85%
by Site of Non-Respiratory Disease				
Meninges & Central Nervous System	4	4	3	75%
Intestines & Peritoneum	3	3	2	67%
Bones & Joints	6	4	4	100%
Skin	2	-	-	0%
Lymphatic System	34	21	16	76%
Genito-Urinary System	14	14	9	64%
Multiple Sites & other Organs	4	4	4	100%
	67	50	38	75%
by Prior Status for T.B.				
New Active	254	226	187	83%
Reactivated (incl. both "Prev. Act." & Presumed T.B.")	47	44	37	84%
	301	270	224	83%
by Native Indian Status (Registered)	48	38	32	84%

* includes 14 cases in which bacteriology status was not known or not determined.

** percent of tested.

HEALTH DISTRICT OF RESIDENT - ACTIVE TUBERCULOSIS
(Table 15 and 15A)

As in previous years, the highest rate was obtained in the district of greater Vancouver, (21.2 and 19.1 respectively for 1986-87). The major contributor to this rate was Vancouver City. However, it should be noted that Vancouver City rates vary greatly between sub-units. North Health Unit, which embraces the inner-city skid row areas (around Hastings and Main), contributed by far the highest rate, 3-4 times the rates prevailing in other parts of the city, 7-8 times the provincial rate and 9-10 times the Canadian rate.

Since 1982 Skeena, Cariboo and Northern Interior Health Districts have presented higher than average rates. In these districts a substantial contribution to the number of cases has been made by Registered Native Indians. (Table 29).

PREVIOUS RADIOLOGICAL FINDINGS
IN ACTIVE CASES
Table 17

This table illustrates that 27 percent of the active cases diagnosed in 1986 (30%,1987) derived from those with inactive tuberculosis and those with various abnormalities, some suspected to be tuberculous in origin. Ten percent of all active cases in 1986 (11% in 1987) derived from persons with inactive tuberculosis following a previously documented active episode.
An additional 4% in 1986 (5% in 1987) derived from apical fibrotic scars presumed to be healed tuberculosis. Thus approximately 15% of active cases were reactivations. This underscores the importance of following such persons, particularly where prior treatment has been inadequate or where associated predisposing conditions exist though cases may be diagnosed active between regular (usually annual) visits to the clinics of the Division.

If only those with previous chest x-rays are considered (46% and 55% respectively for the two years) then the proportion with previously

abnormal x-rays is 58% and 55% respectively. Some of these abnormalities clearly represent the remnants of primary or post-primary disease but others are coincidental findings to be expected in an older, predominantly male population. Since such a high proportion of the tuberculous patients have had a previous chest x-ray for one reason or another, it means that a valuable opportunity exists to alert persons (and their physicians), who have an x-ray abnormality suggesting healed tuberculosis, to be aware of the possibility of reactivation and to consider taking chemoprophylaxis (where appropriate). Radiologists might play a helpful role in this setting.

Of the various abnormalities listed, only selected persons with inactive tuberculosis and presumed tuberculosis (inactive) are currently being recommended for routine follow-up. For the most part, this hinges on the quality of previous treatment for tuberculosis. Only very few other chest x-ray abnormalities are leading to routine recall.

ACTIVE TUBERCULOSIS BY ETHNIC ORIGIN/COUNTRY OF BIRTH (Tables 16, 16A, 16B)

Although not contributing unduly large numbers of cases in 1986, East Indians (23), Chinese (58), Registered Indians (59) and Filipinos (33) demonstrated relatively high rates, (33.5, 51.5, 88.5 and 208.7 per 100,000). A similar pattern occurred in 1987. The foregoing estimates are based on ethnic origin and not on country of birth. Such estimates have a fairly wide margin of error because of the obvious problems inherent in deciding an individual's "ethnic" origin and in obtaining an accurate number for the background population by ethnic grouping. The rates which follow, based on country of origin, are much more solid and are more likely to reflect epidemiological influences of importance.

Registered (status) Native Indians had an annual incidence rate of 88.5 per 100,000, in 1986 i.e. 15 times the rate for whites (and others) in British Columbia. In 1987 the rate at 66.7 remained 15 times the rate for whites (and others).

INCIDENCE OF ACTIVE TUBERCULOSIS BY COUNTRY OF BIRTH (Tables 16A & 16B)

In Table 16A, the rates for Canadian-born and foreign-born are compared and these illustrate the significantly higher rates in those born outside Canada, a rate approximately three times that pertaining to the Canadian-born population. There has been concern that the foreign-born population not reflect a falsely high rate as a result of the contribution made by visitors and other categories of foreign-born persons who are not Canadian citizens nor landed immigrants. Only 5 of the 164 foreign-born group were visitors or on Minister's Permit in 1986, and 4/136 in 1987. In 1986, 22% of the B.C. population was foreign-born yet the latter contributed 45% of all active tuberculosis (48% in 1987).

In Table 16B selected countries contributing significant numbers of cases of tuberculosis, are displayed along with the rates, both for bacteriologically confirmed cases and total active tuberculosis. The varying rates between immigrants from different countries has a complex background. These rates reflect those prevailing in the country of origin and the most important factor in this relationship is obviously the prevalence of infection with tubercle bacilli. But the rates are also influenced by the proportion of recent immigrants and the proportion of those admitted with inactive tuberculosis. The age and sex make-up of the group may also be influential. Table 16B points up the ralatively high rates occurring over this period in those born in Korea, Vietnam, China and the Philippines and, in contrast, the very low rate for those born in Canada. If the cases occurring among Registered (Status) Native Indians are excluded from those born in Canada, the rates for Canadian-born drop even lower to 5.7 per 100,000 for 1986 (4.4 for 1987). Compared with the immigrant group with the highest rate in 1987, namely Vietnam, Canadian-born persons (excluding Status Indians) have a rate aproximately 30 times lower!

NON-RESPIRATORY ACTIVE TUBERCULOSIS (Tables 14, 14A and Summary Table B)

The number of cases in which the principal diagnosis was not respiratory (including pleurisy) was 70 (20%) for 1986 and 67 (22%) for 1987. This underestimates the total number of cases in which non-respiratory diagnoses were recorded since in Tables 14 and 14A only the principal diagnosis was

recorded and whenever active respiratory tuberculosis was present this took precedence.

Tuberculous lymphadenopathy was by far the commonest non-respiratory organ system affected, contributing 60% in 1986 and 51% in 1987. Genito-urinary system was the second commonest, contributing 10% in 1986 and 21% in 1987. This trend has been consistent for several years.

Once again, concern must be expressed at the relatively low percentage of lymphatic cases which were bacteriologically confirmed (Summary Table B(a)). As mycobacteria other than tubercle bacilli assume a relatively greater role as a cause of mycobacterial (granulomatous) lymphadenopathy, particularly in Canadian-born children, and as AIDS becomes an increasingly important etiology, with a tendency to be complicated by opportunistic mycobacteria, it is very important to make every effort to secure bacteriological confirmation. This involves being alert to the possibility and handling operative specimens properly.

In 1986, 71% of all lymphatic cases were bacteriologically confirmed; in 1987, only 47%. Combining the two years, in only 72% of all cases (55/76) was bacteriology tested. However, in only 3 cases in the two years was the diagnosis made without bacteriology or histology i.e. on clinical grounds alone (including skin tests). In the other 18 cases, in which no bacteriological testing was done, there was typical histology.

TUBERCULOSIS MORTALITY
(Tables 22 - 26)

All available information on each tuberculosis death has been reviewed by a physician of the Division of T.B. Control.

The terms used are defined in the tables.

47 persons died with active tuberculosis during 1986 (35 in 1987). In the case of 7 (3 in 1987) of these, although they harboured active tuberculosis, this was not considered contributory to death.

The majority of these deaths were diagnosed in 1986 or 1987 although some may have been diagnosed in previous years and still retained the diagnosis of "active" at the time of death. The rates for those cases in which tuberculosis was considered the principal or contributory cause of death were 1.4 (1986) and 1.1 per 100,000 (1987).

ACTIVE TUBERCULOSIS AMONG REGISTERED INDIANS
(Tables 27 - 29)

Fifty-nine Registered Native Indians developed active tuberculosis during 1986, (48 in 1987) contributing 17% (16% in 1987) of the total number of active cases for the province. The age and sex distribution, the type of disease, the bacillary status and the health districts from which these cases came are detailed in these tables.

Registered (status) Indians exhibited an annual incidence rate in 1986 of 88.5 per 100,000 (66.7 in 1987) approximately 7.4 (6.0 in 1987) times the overall provincial rate of 11.9, (10.2 in 1987). The relatively high proportion of active cases in the group to age 34 years is again illustrated; 54% in 1986 (56% in 1987) compared with 30% for the province as a whole ($p<0.001$). The percentage of primary tuberculosis is 27% (25% in 1987) compared with 3.1% (2.0 in 1987) for the province ($p<0.001$). Both of these indicators suggest a continuing relatively high rate of transmission of infection among children and young adults.

T.B.WARD - VANCOUVER GENERAL HOSPITAL

Table 1. TOTAL ADMISSIONS[1] BY AGE, AND PERCENTAGE OF TOTAL ADMISSIONS IN EACH AGE GROUP, British Columbia, 1983-1987

AGE-GROUP	1983		1984		1985		1986		1987	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0 - 9 Years	-	-	1	0.7	-	-	-	-	-	-
10 - 19 Years	2	1.4	2	1.3	-	-	2	1.3	3	2.3
20 - 29 Years	14	9.9	28	18.8	21	13.6	16	10.1	18	13.4
30 - 39 Years	20	14.2	22	14.8	35	22.7	24	15.2	27	20.1
40 - 49 Years	30	21.3	23	15.4	16	10.4	29	18.4	20	15.0
50 - 59 Years	28	19.8	22	14.8	28	18.2	23	14.6	11	8.2
60 - 69 Years	25	17.8	22	14.8	24	15.6	22	13.9	24	17.9
70 - 99 Years	22	15.6	29	19.4	30	19.5	41	26.5	31	23.1
TOTAL	**141**	**100.0**	**149**	**100.0**	**154**	**100.0**	**158**	**100.0**	**134**	**100.0**

[1] Includes re-admissions.

NOTE: The above figures include admissions to Sunnyhill Hospital for children:

0 in 1983
1 in 1984
0 in 1985
0 in 1986
0 in 1987

Table 1a.

ADMISSIONS, 1986-1987

	1986 1st Adm./Re-admissions/%		1987 1st Adm./Re-admissions/%	
Active Tuberculosis	113/17	(15%)	107/17	(16%)
Pulmonary	99/15		101/16**	
Other Respiratory	7/1		3/1	
Non-Pulmonary	7/1		30	
Mycobacteria Other Than Tuberculosis	18/5	(27.7%)	13/1	(8%)
Inactive Tuberculosis*	15/3	(20%)	8/2	(25%)
Non-Tuberculous Disease	12/0	(-)	6/0	(-)
TOTAL ADMISSIONS	**158/25**	**(16%)**	**134/20**	**(15%)**

* Admitted for possible reactivation which was not confirmed.

** NOTE: RE-ADMISSIONS
1987 - 8 of these re-admissions were for 3 persons. Two had 3 re-admissions and one had 2 re-admissions for this "episode" of disease.

Table 2

DISCHARGES FROM T.B. WARD, V.G.H., BY DIAGNOSIS ON DISCHARGE, SEX AND LENGTH OF STAY. British Columbia, 1986.

DIAGNOSIS		LENGTH OF STAY IN COMPLETED MONTHS/DAYS					
	MOS.	Under 1	1 - 2	3 - 4	5 - 6	7-11	TOTAL
	DAYS	0 - 29	30 - 89	90 - 149	150-209	210-364	
RESPIRATORY T.B. ACTIVE							
Pleurisy	M	-	2	1	-	-	3
	F	2	2	-	-	-	4
Primary	M	-	-	-	-	-	0
	F	-	-	-	-	-	0
Minimal	M	8	10	1	1	-	20
	F	7	2	1	-	-	10
Mod. Advanced	M	10	22	3	-	-	35
	F	2	8	-	1	-	11
Far Advanced	M	4	8	1	2	-	15
	F	1	4	1	-	-	6
Miliary	M	-	-	-	-	-	-
	F	1	-	-	-	-	1
Silico-TB	M	1	1	-	-	-	2
	F	-	-	-	-	-	-
Extent Unknown	M	1	-	-	-	-	1
	F	-	-	-	-	-	0
NON-RESPIRATORY T.B. ACTIVE	M	-	1	-	-	-	1
	F	4	1	-	-	-	5
RESPIRATORY INACTIVE	M	11	-	-	1	-	12
	F	3	-	-	-	-	3
OTHER MYCOBACTERIUM	M	3	5	-	-	-	8
	F	7	2	-	1	-	10
NON-TB OTHER LUNG DISEASE	M	7	2	-	-	-	9
	F	3	-	-	-	-	3
TOTAL	M	45	51	6	4	-	106
	F	30	19	2	2	-	53
GRAND TOTAL		75	70	8	6	-	159
PERCENT		46.8	44.3	5.1	3.8	0	100.0
DISCHARGE DEAD*		3	2	0	2	0	7

* These discharges have been allotted to the diagnostic categories above and included in the grand total.

Table 2 A. DISCHARGES FROM T.B. WARD, V.G.H., BY DIAGNOSIS ON DISCHARGE, SEX AND LENGTH OF STAY. British Columbia, 1987.

DIAGNOSIS		LENGTH OF STAY IN COMPLETED MONTHS/DAYS					TOTAL
	MOS.	Under 1	1 - 2	3 - 4	5 - 6	7-11	
	DAYS	0 - 29	30 - 89	90 - 149	150-209	210-364	
RESPIRATORY T.B. ACTIVE							
Pleurisy	M	1	0	-	-	1	2
	F	1	-	-	-	-	1
Primary	M	-	-	-	-	-	0
	F	-	-	-	-	-	0
Minimal	M	15	9	2	1	-	27
	F	6	4	-	-	-	10
Mod. Advanced	M	9	15	2	-	1	27
	F	7	4	1	-	-	12
Far Advanced	M	-	7	8	1	-	16
	F	1	1	-	-	-	2
Miliary	M	-	-	-	-	-	-
	F	-	-	-	-	-	-
Silico-TB	M	-	-	-	-	-	-
	F	-	-	-	-	-	-
TB bronchus	M	-	-	-	-	-	0
	F	-	1	-	-	-	1
TB Tonsil	M	-	-	-	-	-	0
	F	1	-	-	-	-	1
NON-RESPIRATORY T.B. ACTIVE	M	-	-	-	-	-	-
	F	2	3	-	-	-	5
RESPIRATORY INACTIVE	M	3	2	-	-	-	5
	F	2	4	-	-	-	6
OTHER MYCOBACTERIUM	M	1	2	1	-	-	4
	F	7	2	-	-	-	9
NON-TB OTHER LUNG DISEASE	M	3	1	1	-	-	5
	F	1		-	-	-	1
TOTAL	M	32	36	14	2	2	86
	F	28	19	1	-	-	48
GRAND TOTAL		60	55	15	2	2	134
PERCENT		44.8	41.0	11.2	1.5	1.5	100.0
DISCHARGE DEAD*		-	-	1	-	1	2

* These discharges have been allotted to the diagnostic categories above and included in the grand total.

Table 3 DISCHARGES FROM T.B. WARD, V.G.H., BY TYPE OF DISCHARGE, SEX, AND LENGTH OF STAY, British Columbia, 1986

TYPE OF DISCHARGE		LENGTH OF STAY IN COMPLETED DAYS					TOTAL BY SEX	GRAND TOTAL
	Days	0-29	30-89	90-149	150-209	210-364		
On Medical Advice	M	36	49	6	3	-	93	
	F	28	16	-	1	-	45	139
Against Medical Advice	M	6	1	-	-	-	7	
	F	2	2	2	-	-	6	13
Disciplinary	M	-	-	-	-	-	-	
	F	-	-	-	-	-	-	-
Death	M	3	1	-	1	-	5	
	F	-	1	-	1	-	2	7
TOTAL	M	45	51	6	4	0	105	159
	F	30	19	2	2	0	53	
GRAND TOTAL		**75**	**70**	**8**	**6**	**0**	**158**	**159**

Table 3a.

DISCHARGES FROM T.B. WARD, V.G.H., BY TYPE OF DISCHARGE, SEX, AND LENGTH OF STAY, British Columbia, 1987

TYPE OF DISCHARGE		LENGTH OF STAY IN COMPLETED DAYS					TOTAL BY SEX	GRAND TOTAL
	Days	0-29	30-89	90-149	150-209	210-364		
On Medical Advice	M	29	31	12	2	1	75	
	F	26	19	1	-	-	45	121
Against Medical Advice	M	3	5	1	-	-	9	
	F	2	-	-	-	-	2	11
Disciplinary	M	-	-	-	-	-	-	
	F	-	-	-	-	-	-	-
Death	M	-	-	1	-	1	2	
	F	-	-	-	-	-	-	2
TOTAL	M	32	36	14	2	2	86	
	F	28	19	1	-	-	48	134
GRAND TOTAL		60	55	15	2	2	134	134

Table 4. PLACE OF TREATMENT OF ACTIVE TUBERCULOUS CASES BY PRINCIPAL DIAGNOSIS, British Columbia, 1986

DIAGNOSIS	DOMICILIARY		V.G.H. T.B. WARD		OTHER[1] GEN. HOSPS.		TOTAL	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
RESPIRATORY								
Primary	24	96.0	-	-	1	4.0	25	100.0
Minimal	70	78.7	17	19.1	2	2.2	89	100.0
Moderately Advanced	35	44.9	39	50.0	4	5.1	78	100.0
Far Advanced	10	26.3	22	57.9	6	15.8	38	100.0
Miliary	5	55.6	-	-	4	44.4	9	100.0
Silico-Tuberculosis	-	-	1	100.0	-	-	1	100.0
Extent Unknown	-	-	-	-	-	-	-	-
Pleurisy	14	77.8	3	16.7	1	5.6	18	100.0
NON-RESPIRATORY	59	86.8	6	8.8	3	4.4	68	100.0
TOTAL	217	66.6	88	27.0	21	6.4	326	100.0

NOTE: In addition to the above total 20 persons were diagnosed at death and were untreated.

[1]Treatment had been started in other hospitals in British Columbia or in other wards in the Vancouver General Hospital than the TB Ward.

Table 4a. PLACE OF TREATMENT OF ACTIVE TUBERCULOUS CASES BY PRINCIPAL DIAGNOSIS, British Columbia, 1987

DIAGNOSIS	DOMICILIARY		V.G.H. T.B. WARD		OTHER[1] GEN. HOSPS.		TOTAL	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
RESPIRATORY								
Primary	16	94.1	-	-	1	5.9	17	100.0
Minimal	57	58.2	38	38.8	3	3.1	98	100.0
Moderately Advanced	23	35.4	32	49.2	10	15.4	65	100.0
Far Advanced	2	11.1	14	77.8	2	11.1	18	100.0
Miliary	3	50.0	1	20.0	1	20.0	5	100.0
Silico-Tuberculosis	-	.0	1	100.0	-	.0	1	100.0
Extent Unknown	1	100	-	-	-	-	1	100.0
Pleurisy	4	66.7	2	33.3	-	.0	6	100.0
NON-RESPIRATORY	58	89.2	3	4.6	4	6.2	65	100.0
TOTAL	**164**	**59.4**	**91**	**32.9**	**21**	**7.6**	**276**	**100.0**

NOTE: In addition to the above total 25 persons were diagnosed at death and were untreated.

[1]Treatment had been started in other hospitals in British Columbia or in other wards in the Vancouver General Hospital than the TB Ward.

Table 5. PLACE OF TREATMENT OF ACTIVE TUBERCULOUS CASES ACCORDING TO PRINCIPAL BACTERIOLOGICAL FINDINGS, British Columbia, 1986

BACTERIOLOGICAL FINDINGS	DOMICILIARY		HOSPITAL T.B. WARD		OTHER[1] GEN. HOSPS.		TOTAL	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
POSITIVE - Smear & culture (or smear only)								
Pulmonary*	55	41.0	63	47.0	16	11.9	134	100.0
Non-Pulmonary	12	80.0	3	20.0	-	-	15	100.0
Pleurisy	-	-	1	100.0	-	-	1	100.0
POSITIVE-Culture only								
Pulmonary	55	84.6	9	13.8	1	1.5	65	100.0
Non-Pulmonary	26	86.7	1	3.3	3	10.0	30	100.0
Pleurisy	5	62.5	2	25.0	1	12.5	8	100.0
NEGATIVE								
Pulmonary	28	80.0	7	20.0	-	-	35	100.0
Non-Pulmonary	10	100.0	-	-	-	-	10	100.0
Pleurisy	7	100.0	-	-	-	-	7	100.0
NOT EXAMINED								
Pulmonary	6	100.0	-	-	-	-	6	100.0
Non-Pulmonary	11	84.6	2	15.4	-	-	13	100.0
Pleurisy	2	100.0	-	-	-	-	2	100.0
TOTAL	217	66.6	88	27.0	21	6.4	326	100.0

NOTE: In addition to the above total 20 persons were diagnosed at death.

1 Treatment had been started in other hospitals in British Columbia or in other wards in the Vancouver General Hospital than T.B. Ward.

* Includes 8 positive smear cases only.

Table 5A **PLACE OF TREATMENT OF ACTIVE TUBERCULOUS CASES ACCORDING TO PRINCIPAL BACTERIOLOGICAL FINDINGS, British Columbia, 1987**

BACTERIOLOGICAL FINDINGS	DOMICILIARY		HOSPITAL T.B. WARD		OTHER[1] GEN. HOSPS.		TOTAL	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
POSITIVE - Smear & culture (or smear only)								
Pulmonary*	34	31.5	62	57.4	12	11.1	108	100.0
Non-Pulmonary	7	77.8	-	.0	2	22.2	9	100.0
Pleurisy	-	-	-	-	-	-	-	-
POSITIVE-Culture only								
Pulmonary	33	60.0	18	32.7	4	7.3	55	100.0
Non-Pulmonary	23	85.2	2	7.4	2	7.4	27	100.0
Pleurisy	2	50.0	2	50.0	-	-	4	100.0
NEGATIVE								
Pulmonary	26	78.8	6	18.2	1	3.0	33	100.0
Non-Pulmonary	12	100.0	-	-	-	-	12	100.0
Pleurisy	1	100.0	-	-	-	-	1	100.0
NOT EXAMINED								
Pulmonary	9	100.0	-	-	-	-	9	100.0
Non-Pulmonary	16	94.1	1	5.9	-	-	17	100.0
Pleurisy	1	100.0	-	-	-	-	1	100.0
TOTAL	164	59.4	91	33.0	21	7.6	276	100.0

NOTE: In addition to the above total 25 persons were diagnosed at death.

[1] Treatment had been started in other hospitals in British Columbia or in other wards in the Vancouver General Hospital than T.B. Ward., V.G.H.

* Includes 4 positive smear cases only.

Table 6. **BRITISH COLUMBIA RESIDENTS ON CHEMOPROPHYLAXIS AS OF DECEMBER 31, 1986 and DECEMBER 31,1987 BY INDICATION FOR THERAPY**

INDICATION FOR CHEMOPROPHYLAXIS	1986		1987	
	Number	Percent	Number	Percent
1. Positive tuberculin reactor with extra risk factor				
A. Contact	229	35.84	203	35.37
B. Convertor	67	10.49	58	10.10
C. Steroids	18	2.82	18	3.14
D. Diabetes, Sarcoid, Silicosis, Radiotherapy, etc.	3	.47	8	1.39
	317	49.61	287	50.00
2. Positive tuberculin reactor without identified extra risk factor (except young age)	207	32.39	165	28.75
3. Chest x-ray evidence of inactive tuberculosis.[1]				
A. Inactive Tuberculosis: No prev. Treatment	6	.94	8	1.39
B. Inactive Tuberculosis: Prev. poor Treatment	13	2.03	8	1.39
C. Inactive Tuberculosis: Prev. good treatment	1	.16	2	.35
D. Inactive Tuberculosis: details of prev. treatment not known.	6	.94	2	.35
E. Presumed Tuberculosis Inactive	57	8.92	59	10.28
	83	12.99	79	13.76
4. Miscellaneous:				
A. Localized pulmonary fibrosis	1	.16	3	.54
D. Others	8	1.29	18	3.26
	9	1.46	21	3.80
TOTAL	616	100.0	552	100.00

[1] Most have positive tuberculin reaction; A, B, C, D. have documented previous active tuberculosis. In E, there is presumptive evidence of previous tuberculosis without documentation of an active episode. (See definition under "Active Cases" later in this report).

Table 6A.

OUTCOME OF CHEMOPROPHYLAXIS, 1986-1987
BY REASON TREATMENT DISCONTINUED AND TOTAL DURATION[1] OF DRUG THERAPY.

Number of Days:	1-90		91-180		181-270		271-335		336-365		366-545		546 & Over		1986		1987	
	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987	No.	%	No.	%
TREATMENT:																		
1. Completed[2]	32	16	37	28	40	54	38	45	165	224	229	167	9	11	550	68.3	545	62.6
11. Incomplete																		
DRUG REACTION	21	45	20	27	10	13	4	3	1	1	–	–	–	–	56	7.0	89	10.2
DEATH	1	4	6	2	1	3	3	–	–	–	2	1	1	1	14	1.7	11	1.3
TRANSFER OUT OF PROVINCE	7	4	4	6	5	5	–	2	–	2	2	–	–	–	18	2.2	19	2.2
LOST TO FOLLOW-UP	6	6	10	8	12	10	4	3	4	–	–	–	2	–	38	4.7	27	3.1
UNCOOPERATIVE	30	39	31	58	18	31	13	18	1	4	5	1	2	–	100	12.4	151	17.3
OTHERS[3]	10	19	9	6	6	2	3	2	–	–	1	–	–	–	29	3.6	29	3.3
TOTAL	107	133	117	135	92	118	65	73	171	231	239	169	14	12	805	100	871	100.

[1] The words "total duration" refer to the duration of the current course of drug treatment to the date when finally discontinued. This duration is not necessarily synonymous with the total duration of adequate treatment.

[2] The term "completed" refers to treatment of adequate quality and duration and/or discontinued on medical advice for reasons other than those listed in 11. e.g. completion of treatment begun in another jurisdiction (another province).

[3] "Others": miscellaneous reasons usually related to revision of the diagnosis after new evidence, e.g. B.C.G.; Pregnancy; Negative tuberculin; In some instances, stopped by private physicians without consulting T.B. Division. Some cases represent primary prophylaxis.

Table 7. PERSONS ON CHEMOTHERAPY (ANTI-TUBERCULOSIS) BY HEALTH DISTRICT, AGE-GROUP AND SEX, AS OF DECEMBER 31, 1986
(Excludes persons on Chemoprophylaxis)

HEALTH DISTRICT	0 - 14		15 - 24		25 - 34		35 - 44		45 - 54		55 - 64		65+		Totals[1]		GRAND TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Central Kootenay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
East Kootenay	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	2	2
South Okanagan	-	-	-	-	-	-	-	-	-	-	-	-	1	3	1	3	4
South Central	1	-	-	-	1	-	-	-	-	-	2	1	-	1	4	2	6
Upper Fraser	-	-	2	-	1	-	2	-	-	1	-	-	2	1	7	2	9
Central Fraser	-	1	-	-	-	1	1	-	2	1	3	-	2	-	8	3	11
Boundary	1	1	1	-	-	1	1	1	2	1	-	1	1	-	6	5	11
Simon Fraser	-	-	-	-	-	1	-	-	1	-	-	-	-	1	1	2	3
Coast-Garibaldi	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	1
Central Vancouver Island	-	-	-	-	-	-	2	-	-	-	-	-	-	2	2	2	4
Upper Island	-	-	-	-	-	-	-	1	1	-	1	-	-	1	2	2	4
Cariboo	2	1	-	-	1	1	1	-	1	-	-	-	-	-	5	2	7
Skeena	3	3	-	-	-	-	2	1	-	-	-	1	-	2	5	7	12
Peace River	-	-	-	-	-	1	1	-	-	-	-	-	-	-	1	1	2
Northern Interior	-	1	3	-	3	-	-	-	-	-	-	1	-	-	6	2	8
Vancouver	1	1	6	12	13	8	8	4	5	5	3	5	20	7	56	42	98
Capital Regional District Community Health Service	-	-	-	-	-	2	1	1	1	-	3	-	2	3	7	6	13
Burnaby	1	-	-	-	1	-	1	2	2	1	-	-	2	1	7	4	11
Richmond	-	-	-	1	1	2	-	-	-	1	-	2	-	1	1	7	8
North Shore	-	-	-	-	-	-	-	-	-	-	1	-	2	1	3	1	4
Unallocated to Health Unit	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
TOTAL	9	8	12	14	21	17	20	10	15	12	13	11	33	24	123	96	219

[1] Includes 35 Registered Indians.
[2] Some persons in this table will have been treated in hospital for a period. During hospital stay will have been assigned to District of residence.

NOTE: An additional 18 persons were receiving antimicrobial drug therapy for mycobacteria other than M. tuberculosis, of which 6 had AIDS.

Table 7A. **PERSONS ON CHEMOTHERAPY (ANTI-TUBERCULOSIS) BY HEALTH DISTRICT, AGE-GROUP AND SEX, AS OF DECEMBER 31, 1987**
(Excludes persons on Chemoprophylaxis)

HEALTH DISTRICT	0 - 14		15 - 24		25 - 34		35 - 44		45 - 54		55 - 64		65+		Totals[1]		GRAND TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Central Kootenay	–	–	–	–	–	–	–	–	–	–	1	1	1	1	2	2	4
East Kootenay	1	–	–	–	–	–	–	–	1	–	1	–	–	–	3	–	3
South Okanagan	–	–	–	1	–	1	–	–	–	–	–	–	1	1	1	3	4
South Central	–	–	–	2	–	1	–	–	1	–	1	1	–	–	2	4	6
Upper Fraser	1	–	–	–	1	1	–	–	–	1	2	–	1	1	5	3	8
Central Fraser	–	1	–	1	1	–	–	–	–	–	–	–	2	–	3	2	5
Boundary	–	–	1	–	1	–	3	2	–	–	–	3	4	4	9	9	18
Simon Fraser	1	–	1	–	–	1	–	–	–	–	–	–	1	–	3	1	4
Coast-Garibaldi	–	–	–	–	–	–	–	–	1	–	1	–	–	1	2	1	3
Central Vancouver Island	–	–	–	–	–	–	–	–	–	1	2	–	1	2	3	3	6
Upper Island	–	–	–	–	1	–	–	–	1	–	–	–	–	–	2	–	2
Cariboo	1	1	–	–	–	–	–	–	1	1	–	–	–	–	2	2	4
Skeena	3	3	–	2	2	1	–	–	–	–	1	–	–	1	6	7	13
Peace River	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	1
Northern Interior	–	–	–	–	1	–	1	–	1	1	–	–	–	–	3	1	4
Vancouver	1	3	2	3	10	6	9	4	9	4	5	5	7	7	43	32	75
Capital Regional District Community Health Service	–	–	–	–	–	–	1	–	–	–	1	1	1	2	3	3	6
Burnaby	–	–	1	1	–	2	1	1	1	–	–	–	1	1	4	5	9
Richmond	–	–	1	–	–	1	–	2	–	–	1	–	–	2	2	5	7
North Shore	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	0	1
Unallocated to Health Unit	–	–	1	–	–	–	–	–	–	–	–	–	2	–	3	–	3
TOTAL	**29**	**8**	**7**	**.10**	**18**	**14**	**15**	**9**	**16**	**9**	**16**	**11**	**22**	**23**	**102**	**84**	**186**

[1] Includes 23 Registered Indians.
[2] Some persons in this table will have been treated in hospital for a period. During hospital stay will have been assigned to District of residence.

NOTE: An additional 13 persons were receiving antimicrobial drug therapy for mycobacteria other than M. tuberculosis, of which 2 had AIDS.

Table 8.

OUTCOME OF CHEMOTHERAPY OF ACTIVE TUBERCULOSIS, 1986-1987
BY REASON TREATMENT DISCONTINUED AND TOTAL DURATION[1] OF DRUG THERAPY.

Number of Days:	1-90		91-180		181-270		271-335		336-365		366-545		546 & Over		1986		1987	
	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987	No.	%	No.	%
TREATMENT:																		
1. Completed[2]	0	1	8	17	45	62	122	106	24	23	46	37	13	11	258	83.5	257	88.9
11. Incomplete																		
DRUG REACTION	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	.3
DEATH	6	-	6	1	4	6	-	1	-	-	2	-	1	-	19	6.1	8	2.8
TRANSFER OUT OF PROVINCE	6	1	4	1	1	2	1	-	1	-	1	-	-	-	14	4.5	4	1.4
LOST TO FOLLOW-UP	-	-	1	1	2	3	-	1	-	-	-	-	1	-	4	1.3	5	1.7
UNCOOPERATIVE	-	2	-	2	2	2	2	-	2	1	2	-	1	1	9	2.9	8	2.8
OTHERS[3]	1	-	1	1	2	4	1	-	-	-	-	1	-	-	5	1.6	6	2.1
TOTAL	**13**	**4**	**20**	**23**	**56**	**80**	**126**	**108**	**27**	**24**	**51**	**38**	**16**	**12**	**309**	**100**	**289**	**100.**

[1] The words "total duration" refer to the duration of the current course of drug treatment to the date when finally discontinued. This duration is not necessarily synonymous with the total duration of adequate treatment.

[2] The term "completed" refers to treatment of adequate quality and duration and/or discontinued on medical advice for reasons other than those listed in 11. e.g. completion of treatment begun in another jurisdiction (another province).

[3] e.g. Stopped by private physicians without consulting T.B. Division; reassessment of diagnosis and activity.

Table 9.

NUMBER OF PERSONS VACCINATED WITH B.C.G.
British Columbia, 1986-1987.

GROUPS TO WHOM B.C.G. VACCINATIONS WERE GIVEN	DIVISION OF TUBERCULOSIS CONTROL		HEALTH[1] UNITS		MEDICAL SERVICES PACIFIC REGION*		B.C.I.T.		T O T A L	
	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987
OCCUPATIONAL GROUPS										
Nurses	4	1	-	-	-	-	-	-	4	1
Other Nursing Personnel	1	2	-	-	-	-	-	-	1	2
Students	-	1	-	-	-	-	4	1	4	2
Other Hospital Personnel	2	1	-	-	-	-	-	-	2	1
Medical Students	3	2	-	-	-	-	-	-	3	2
NATIVE INDIANS (REGISTERED)										
Newborn	-	-	8	9	173	382	-	-	181	391
Children & Adults	-	-	-	6	63	105	-	-	63	111
							SUB-TOTAL		244	502
ALL OTHER PERSONS										
Newborn (Contacts)	-	-	-	2	-	-	-	-	-	2
Newborn (Not Contacts)	-	-	5	-	-	-	-	-	5	-
Children & Adults (Contacts)	2	1	-	-	-	-	-	-	2	1
Children & Adults (Not Contacts)	24	22	2	-	-	-	-	-	26	22
TOTAL	36	30	15	17	236	487	4	1	291	535

[1] Given by Provincial Health Units
* Registered Native Indians on reserve

Table 10.

YIELD OF CHEST X-RAY SCREENING PROGRAM BY ABNORMAL CONDITION DETECTED*
1986 - 1987
TUBERCULOSIS CONTROL, BRITISH COLUMBIA.

	(1) TOTAL X-RAYED	(2) ACTIVE TUBERCULOSIS	(3) NEW PULMONARY TUBERCULOUS CASES	(4) KNOWN PULMONARY TUBERCULOUS CASES	(5) NON-TUBERCULOUS CONDITIONS
1986					
TOTAL	7264	9	73[1]	88[1]	290[2]
RATES PER 100,000		123	1005		
1987					
TOTAL	12015	9	84[1]	106[1]	501
RATES PER 100,000		75	699		

* X-rays taken and/or interpreted by Division of T.B. Control. Total number of x-rays and rates of various abnormalities were drawn from selected clinics (of Division) which have adopted uniform recording practices. The increase in the number of x-rays taken in 1987 is explained by the addition of an extra clinic to this table.

NOTE: The numbers in Column 5 represent persons with various abnormalities on chest x-ray. It excludes 233 (1986) and 958 (1987) x-rays that were judged negative after further examination.

[1] Includes Active/Inactive/Presumed T.B. Inactive disease.

[2] Includes 63 patients started on chemoprophylaxis in 1986 and 132 in 1987, the x-ray abnormalities being judged not to be indicative of tuberculosis.

Table 11.

ACTIVE TUBERCULOSIS
AGENCY PROVIDING INITIAL INVESTIGATION (USUALLY X-RAY) LEADING TO THE DIAGNOSIS.
British Columbia, 1986 - 1987

SOURCE	1986	1987
UNITS OF THE DIVISION:		
Willow Chest Centre:		
Survey Clinic	3	4
Diagnostic Clinic	20	21
New Westminster Chest Centre:		
Survey Clinic	-	-
Diagnostic Clinic	2	3
Victoria & Island Chest Centre:		
Survey Clinic	-	-
Diagnostic Clinic	5	1
Travelling Clinic	7	13
(Verification by Travelling Clinic)	-	-
Mobile Clinic	1	5
TOTAL	38	47
Percent	11.0	15.6
INDIAN HEALTH SERVICES:		
Indian Health Services	5	-
Indian Mobile (Survey)	3	1
TOTAL	8	1
Percent	2.3	.3
OTHER:		
Private Radiologist	50	63
Private Physicians Office	7	4
Mental Health Services	1	-
Ex-Province (including Immigration)	3	2
Provincial Jails (LMRCC & Prince George)	4	1
TOTAL	65	70
Percent	18.8	23.3
GENERAL HOSPITALS:		
Diagnostic Film: Out-patient	61	46
" " : In-patient	97	55
Diagnosed in hospital on basis other than x-ray	53	39
Day care (basis other than x-ray)	6	19
TOTAL	217	159
Percent	62.7	52.8
NOTIFIED ON DEATH:		
Notified on death	14	20
Notified on death; T.B. diagnosed during life	4	4
TOTAL	18	24
Percent	5.2	8.0
GRAND TOTAL	**346**	**301**
PERCENT	**100**	**100**

Table 12.

INCIDENCE OF ACTIVE TUBERCULOSIS BY AGE-GROUP AND SEX AND BACILLARY STATUS
British Columbia, 1986

YEAR	MALES				FEMALES				TOTAL			
	BACILLARY CASES		ALL ACTIVE CASES		BACILLARY CASES		ALL ACTIVE CASES		BACILLARY CASES		ALL ACTIVE CASES	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0 - 14	8	2.6	11	3.6	4	1.4	12	4.1	12	2.0	23	3.9
15 - 24	9	3.9	16	7.0	5	2.3	15	6.8	14	3.1	31	6.9
25 - 34	24	9.6	28	11.2	19	7.4	22	8.6	43	8.5	50	9.9
35 - 44	28	13.1	33	15.4	16	7.6	18	8.6	44	10.4	51	12.0
45 - 54	15	10.0	24	16.0	10	6.9	15	10.4	25	8.5	39	13.2
55 - 64	19	14.0	22	16.2	12	8.4	13	9.1	31	11.2	35	12.6
65 - 74	36	36.5	43	43.6	13	10.9	17	14.3	49	22.5	60	27.5
75 & Over	25	45.4	29	52.7	24	29.0	28	33.8	49	35.6	57	41.2
TOTAL	**160**	**11.1**	**206**	**14.3**	**100**	**6.8**	**140**	**9.5**	**267**	**9.2**	**346**	**11.9**

Rates per 100,000 population - June 1986.

1986 POPULATION BY AGE AND SEX - STATISTICS CANADA

YEAR	MALES	FEMALES	TOTAL
0 - 14	305,800	290,200	596,000
15 - 24	229,400	221,600	451,000
25 - 34	250,400	256,300	506,700
35 - 44	214,500	210,400	424,800
45 - 54	150,100	144,300	294,400
55 - 64	135,400	142,200	277,700
65 - 74	98,700	119,100	217,800
75 +	55,000	82,600	137,600
GRAND TOTAL	**1,439,300**	**1,466,700**	**2,906,000**

Table 12A

INCIDENCE OF ACTIVE TUBERCULOSIS BY AGE-GROUP AND SEX AND BACILLARY STATUS
British Columbia, 1987

YEAR	MALES				FEMALES				TOTAL			
	BACILLARY CASES		ALL ACTIVE CASES		BACILLARY CASES		ALL ACTIVE CASES		BACILLARY CASES		ALL ACTIVE CASES	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0 - 14	1	.3	7	2.3	3	1.0	10	3.4	4	.6	17	2.8
15 - 24	10	4.5	12	5.4	12	5.6	16	7.5	22	5.0	28	6.4
25 - 34	19	7.5	28	11.1	15	5.8	19	5.8	34	6.6	47	9.2
35 - 44	15	6.7	20	8.9	6	2.7	12	5.4	21	4.7	32	7.2
45 - 54	20	13.0	27	17.6	11	7.4	15	10.1	31	10.3	42	13.3
55 - 64	20	14.6	24	17.5	10	7.1	15	10.6	30	10.8	39	14.0
65 - 74	21	20.6	23	22.6	18	14.6	25	20.3	39	17.3	48	21.3
75 & Over	26	46.1	28	49.7	17	20.0	20	23.06	44	31.2	48	34.0
TOTAL	**132**	**9.1**	**169**	**11.6**	**92**	**6.2**	**132**	**8.9**	**224**	**7.7**	**301**	**10.3**

Rates per 100,000 population - June 1987.

1987 POPULATION BY AGE AND SEX - STATISTICS CANADA

YEAR	MALES	FEMALES	TOTAL
0 - 14	305,700	289,700	595,400
15 - 24	219,000	212,600	431,600
25 - 34	251,400	258,500	509,900
35 - 44	223,900	220,600	444,500
45 - 54	153,300	147,700	301,000
55 - 64	136,800	140,800	277,600
65 - 74	101,600	123,100	224,700
75 +	56,300	84,700	141,000
GRAND TOTAL	**1,448,000**	**1,477,700**	**2,925,700**

Table 13.

ACTIVE TUBERCULOSIS FOR ALL CASES AND BACILLARY ONLY,
British Columbia, 1981 - 1987

YEAR	MALES				FEMALES				TOTAL			
	BACILLARY CASES		ALL ACTIVE CASES		BACILLARY CASES		ALL ACTIVE CASES		BACILLARY CASES		ALL ACTIVE CASES	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1981	167	12.7	210	15.8	120	9.0	168	12.7	287	10.9	378	14.3
1982	165	12.1	231	16.9	118	8.6	187	13.6	283	10.3	418	15.2
1983	186	13.2	235	16.7	96	6.7	133	9.3	282	9.9	368	13.0
1984	180	12.6	224	15.6	134	9.3	183	12.7	314	10.9	407	14.2
1985	170	11.8	211	14.7	91	6.2	129	8.9	261	9.0	340	11.8
1986	160	11.1	206	14.3	100	6.8	140	9.5	260	8.9	346	11.9
1987	132	9.1	169	11.6	92	6.2	132	8.9	224	7.6	301	10.2

Rates per 100,000 population, Statistics Canada, June, 1986, June, 1987.

Table 14. **PRINCIPAL DIAGNOSIS OF ACTIVE TUBERCULOSIS, AMONG NON-INDIANS AND INDIANS, British Columbia, 1986**

DIAGNOSIS	NON-INDIANS[1]		REGISTERED INDIANS	
	Number	Percent	Number	Percent
RESPIRATORY:				
Primary	9	3.1	16	27.1
Minimal	74	25.8	18	30.5
Moderately Advanced	68	23.7	12	20.3
Far Advanced	39	13.6	5	8.5
Miliary	14	4.9	1	1.7
Silico-Tuberculosis	1	.3	-	-
Pleurisy	17	5.9	2	3.4
Tuberculoma	-	-	-	-
Other (extent unknown)	-	-	-	-
Sub-total	(222)	(77%)	(54)	(92%)
NON-RESPIRATORY:				
Meninges and Central Nervous System	2	.7	1	1.7
Intestines and Peritoneum	6	2.1	-	-
Bones & Joints	4	1.4	1	1.7
Skin and Subcutaneous Cell Tissue	3	1.0	-	-
Lymphatic System	39	13.6	3	5.1
Genito-Urinary System	7	2.4	-	-
Multiple Sites and Other Organs	4	1.4	-	-
Sub-total	(65)	(23%)	(5)	(8%)
TOTAL	**287**	**100.0**	**59**	**100.0**

[1] Includes 14 non-status Indians.

Table 14A **PRINCIPAL DIAGNOSIS OF ACTIVE TUBERCULOSIS, AMONG NON-INDIANS AND INDIANS, British Columbia, 1987**

DIAGNOSIS	NON-INDIANS[1]		REGISTERED INDIANS	
	Number	Percent	Number	Percent
RESPIRATORY:				
Primary	5	2.0	12	25.0
Minimal	93	36.8	8	16.7
Moderately Advanced	56	22.1	18	37.5
Far Advanced	17	6.7	4	8.3
Miliary	10	4.0	1	2.1
Silico-Tuberculosis	1	.4	-	-
Pleurisy	7	2.8	-	-
Tuberculoma	1	0.4	-	-
Other (Extent Unknown)	1	0.4	-	-
Sub-total	(191)	(75%)	(43)	(90%)
NON-RESPIRATORY:				
Meninges and Central Nervous System	4	1.6	-	-
Intestines and Peritoneum	3	1.2	-	-
Bones and Joints	6	2.4	-	-
Skin and Subcutaneous Cell Tissue	2	0.8	-	-
Lymphatic System	30	11.9	4	8.3
Genito-urinary System	13	5.1	1	2.1
Multiple Sites and Other Organs	4	1.6	-	-
Sub-Total	(62)	(25%)	(5)	(10%)
TOTAL	**253**	**100.0**	**48**	**100.0**

[1] Includes 11 non-status Indians.

Table 15. **ACTIVE TUBERCULOSIS[1] BY HEALTH DISTRICT OF RESIDENCE, ALL ACTIVE CASES INCLUDING STATUS INDIANS British Columbia, 1986-1987**

HEALTH DISTRICT	ALL ACTIVE CASES			
	1986[2]		1987[3]	
	Number	Rate*	Number	Rate*
East Kootenay	4	5.2	4	5.2
Central Kootenay	2	2.6	7	9.0
North Okanagan	1	1.1	4	4.2
South Okanagan	11	7.2	5	5.2
South Central	11	9.9	8	7.1
Upper Fraser Valley	15	11.9	13	10.1
Central Fraser Valley	13	9.5	5	3.6
Boundary	19	7.1	25	9.2
Simon Fraser	11	7.1	6	3.8
Coast-Garibaldi	2	3.8	5	9.4
Central Vancouver Island	7	4.0	7	4.0
Upper Island	6	6.5	2	2.1
Cariboo	12	17.8	6	8.7
Skeena	14	16.4	17	19.6
Peace River	1	1.6	3	4.6
Northern Interior	18	15.0	11	9.0
Vancouver City	142	33.0	128	29.6
Burnaby	16	11.0	13	8.8
North/West Vancouver	7	4.9	7	4.9
Richmond	10	9.4	11	10.2
Metropolitan Board of Health of Greater Vancouver	175	21.2	159	19.1
Capital Regional District	24	9.1	12	4.5
Ex-Province	-	-	1	.0
TOTAL	**346**	**11.9**	**301**	**10.2**

1
2 Includes active and reactivated cases.
3 Population census - 1986.
Population census - 1987.
* Rates are per 100,000 population.

Table 15A (continued)

ACTIVE TUBERCULOSIS
FOR CITY OF VANCOUVER HEALTH UNITS
1986-1987

UNIT	1986 Number	1986 Rate	1987 Number	1987 Rate
North*	51	73.0	55	78.7
South/East	43	31.9	40	29.6
West/Main	25	22.2	17	15.1
Burrard/Robson	23	20.1	26	22.7
TOTAL VANCOUVER	**142**	**33.0**	**128**	**29.6**
B.C.	**346**	**11.9**	**301**	**10.2**
CANADA	**2145**	**8.4**	**1957**	**7.6**

* includes North Hamilton, Downtown core.

POPULATION[1]	1986
North	69,826
South/East	134,693
West/Main	112,401
Burrard/Robson	114,163
VANCOUVER	**431,083**

[1] Population figures used for 1987 same as for 1986.

Table 15B

POPULATION STATISTICS - BRITISH COLUMBIA 1986/87 BY HEALTH UNIT

	1986	1987
East Kootenay Health Unit	76,362	77,365
Central Kootenay Health Unit	77,688	78,131
North Okanagan Health Unit	94,494	95,645
South Okanagan Health Unit	152,423	154,325
South Central Health Unit	111,450	113,030
Upper Fraser Valley Health Unit	125,977	128,561
Central Fraser Valley Health Unit	136,630	139,745
Boundary Health Unit	267,218	272,474
Simon Fraser Health Unit	154,172	155,968
Coast-Garibaldi Health Unit	52,418	53,166
Central Fraser Valley Health Unit	173,665	176,031
Upper Island Health Unit	91,793	93,412
Cariboo Health Unit	67,514	68,673
Skeena Health Unit	85,286	86,818
Peace River Health Unit	64,100	65,438
Northern Interior Health Unit	119,850	122,127
Vancouver City*	430,271	432,315
Burnaby*	145,710	146,987
North/West Vancouver*	141,976	142,897
Richmond*	105,837	107,644
Capital Regional District	263,208	265,580
TOTAL ESTIMATED POPULATION B.C.	**2,938,042**	**2,976,332**
* Metropolitan Board of Health of Greater Vancouver	823,794	829,843

Note: Produced by Central Statistics Bureau, B.C. The total estimated population for B.C. in this table is slightly different for the two years from the Statistics Canada totals used to calculate the overall annual rate for the province (see tables 12 and 12A).

Table 16. INCIDENCE OF ACTIVE[1] TUBERCULOSIS BY ETHNIC ORIGIN, British Columbia, 1986-1987

1986 ETHNIC ORIGIN	BACTERIOLOGICALLY CONFIRMED CASES		TOTAL ACTIVE TUBERCULOSIS	
	Number of Cases	Rate[2]	Number of Cases	Rate[2]
White and Others	115	4.5	151	5.9
Indian (Registered)[3]	49	73.5	59	88.5
Indian (Non-Status)[3]	10	-	14	-
Chinese	51	45.3	58	51.5
Japanese, Korean	2	9.5	3	14.3
East Indian, Pakistani	16	23.3	23	33.5
Vietnamese	1	6.3	5	31.6
Filipino	23	145.4	33	208.7
TOTAL	267		346	

1987 ETHNIC ORIGIN	BACTERIOLOGICALLY CONFIRMED CASES		TOTAL ACTIVE TUBERCULOSIS	
	Number of Cases	Rate[4]	Number of Cases	Rate[4]
White and Others	95	3.7	119	4.6
Indian (Registered)[5]	32	44.5	48	66.7
Indian (Non-Status)[5]	10	-	11	-
Chinese	46	40.9	61	54.2
Japanese - Korean	3	14.3	4	19.1
East Indian	17	24.8	25	36.4
Vietnamese	3	19.0	3	19.0
Filipino	18	113.8	30	189.7
TOTAL	224		301	

1 Includes active and reactivated cases.
2 Rates per 100,000 population based on 1986 (intercensal) population census.
3 Rates for Indians (Registered) are based on total population of on/off reserves for 1986 (66,604). Rates for Indians, Non-status, are not available.
4 Rates per 100,000 population based on 1986 (intercensal) population census.
5 Rates for Indians (Registered) are based on total population of on/off reserves for 1987 (71,866). Rates for Indians, Non-status, are not available.

Table 16A.

INCIDENCE OF ACTIVE[1] TUBERCULOSIS AMONG CANADIAN BORN AND FOREIGN-BORN, British Columbia, 1986-1987

	BACTERIOLOGICALLY CONFIRMED CASES				TOTAL ACTIVE TUBERCULOSIS			
	1986		1987		1986		1987	
	Number of Cases	Rate[2]	Number of Cases	Rate[2]	Number of Cases	Rate[2]	Number of Cases	Rate[2]
Canadian Born	**144**	**6.5**	**112**	**5.1**	**182**	**8.2**	**145**	**6.6**
Foreign-Born	**123**	**19.5**	**112**	**17.8**	**164**	**25.8**	**156**	**24.7**
Canadian Citizen	39	(17.9)[4]	47	(14.5)[4]	51	(23.6)[4]	67	(20.9)[4]
Landed Immigrant	74		45		99		65	
Ministers Permit[3]	1		-		1		1	
Visitors (Sailors, etc.)	2		1		3		1	
Student Visas	-		2		1		2	
Status uncertain	7		17		9		20	
TOTAL	**267**		**209**		**346**		**301**	

[1] Includes active and reactivated cases.
[2] Rates per 100,000 population based on 1986 population census. (Born in Canada living in B.C.: 2,213,510; Born outside Canada living in B.C.: 630,675 or 22% of B.C. population).
[3] Non-landed Immigrants.
[4] Foreign-born rates confined to Canadian Citizens and Landed Immigrants.

Table 16B.

INCIDENCE OF ACTIVE TUBERCULOSIS[1] BY COUNTRY OF BIRTH, BRITISH COLUMBIA, 1986-1987

COUNTRY OF BIRTH	BACTERIOLOGICALLY CONFIRMED CASES				TOTAL ACTIVE TUBERCULOSIS			
	1986		1987		1986		1987	
	Number of Cases	Rate	Number of Cases	Rate*	Number of Cases	Rate	Number of Cases	Rate*
Canada & Province (Excl. Status Native Indians)	144	6.5	112	4.9	182	8.2	145	6.4
China	95	4.4	80	3.5	123	5.7	97	4.4
Japan	32	77.7	29	69.2	37	89.8	38	90.7
Korea	1	19.2	1	18.8	2	38.4	1	18.8
India	1	24.2	3	65.4	1	24.2	3	65.4
Vietnam	13	32.6	14	33.0	20	50.2	19	44.8
Philippines	8	82.0	7	66.6	13	133.4	14	133.1
Others	10	64.2	9	53.6	15	96.3	15	89.4
Not stated or unknown	38	7.3	46	8.7	70	13.5	63	11.9
	4	-	3	-	6	-	3	-
TOTALS	**251**	**9.2**	**224**	**7.7**	**346**	**11.9**	**301**	**10.3**

[1] Includes active and reactivated cases.

Rates per 100,000 population based on 1986 Canada Census and estimates derived from this by the Central Statistics Bureau, Ministry of Finance and Corporate Relations, B.C. and Immigration Statistics Division, Employment and Immigration Canada.

Table 16B (continued)

To make the "TOTALS" consistent with Table 12, the same population estimate was used: 2,906,000. The main subtotals for Table 16B were derived from 1986 Canada Census. The population for individual countries of origin were based on the 1981 Canada census with subsequent adjustments based on information provided by Immigration Statistics Division, Employment and Immigration Canada.

	1986	1987
NON-IMMIGRANT POPULATION OF B.C.	2,218,910	2,276,712
IMMIGRANT POPULATION OF B.C.	630,675	649,588
TOTAL	2,849,585	2,925,700
SELECTED IMMIGRANT POPULATIONS BY PLACE OF BIRTH		
China	41,165	41,898
Japan	5,195	5,330
Korea	4,125	4,581
Vietnam	9,745	10,515
Philippines	15,565	16,784
India	39,780	42,390
(Subtotal)	115,575	121,498
Others	515,100	528,090

Table 17.

PREVIOUS RADIOLOGICAL FINDINGS IN ACTIVE CASES DIAGNOSED IN 1986 - 1987

	1986		1987	
	Number	Percent	Number	Percent
KNOWN PRE-EXISTING CHEST X-RAY ABNORMALITY: REACTIVATION I				
Inactive Tuberculosis (previously documented active episode(s))	35	10.11	32	10.70
REACTIVATION II				
Presumed Tuberculosis Inactive	15	4.34	15	5.02
PRE-EXISTING CHEST X-RAY ABNORMALITY - OTHER				
Pulmonary Fibrosis (Localized and Diffuse)	10	2.92	14	4.68
Old Pleurisy & Other Pleural Changes	10	2.92	5	1.67
Healed Primary Complex	2	.58	7	2.34
Hilar Calcification	1	.29	-	-
Bronchovascular changes	4	1.1	1	.33
Solitary Lung Densities	5	1.46	6	2.01
Other Conditions	10	2.92	11	3.68
	42	12.17	44	14.06
Sub-total	92	26.67	91	30.43
NO PRE-EXISTING CHEST X-RAY ABNORMALITY:				
Negative X-ray	67	19.53	73	24.41
NO PREVIOUS CHEST X-RAY TAKEN OR AVAILABLE	186	53.91	135	45.15
Sub-Total	253	73.33	208	69.57
TOTAL CASES	**346***	**100.00**	**301****	**100.00**

* Total includes one case arriving from Manitoba as continuously active, diagnosed in 1986.

** Total includes two cases arriving from Alberta & Ontario as continuosly active, diagnosed in 1987.

Table 18. **CONTRIBUTION OF REACTIVATIONS TO TOTAL ACTIVE TUBERCULOSIS CASES BY AGE GROUP British Columbia, 1986-1987**

TYPE OF CASE	Age-Group				TOTAL
	0-24	25-44	45-64	65+	
ALL ACTIVE CASES - 1986					
TOTAL Number of Cases	54	101	74	117	346
Number of Reactivations I	2	9	9	15	35
Percent of Total By Age	3.7	8.9	12.2	12.8	10.1
Number of Reactivations II	1	2	3	9	15
Percent of Total By Age	1.9	2.0	4.1	8.3	4.4
TOTAL REACTIVATIONS	3	11	12	24	50
Percent of Total By Age	5.6	10.9	16.2	20.5	11.5
ALL ACTIVE CASES - 1987					
TOTAL Number of Cases	45	79	81	96	301
Number of Reactivations I	1	7	9	15	32
Percent of Total By Age	2.2	8.9	11.1	15.6	10.7
Number of Reactivations II	-	-	6	9	15
Percent of Total By Age	-	-	7.4	10.5	5.2
TOTAL REACTIVATIONS	1	7	15	24	47
Percent of Total By Age	2.2	8.9	18.5	25.0	15.6

Reactivations I: Derived from Inactive Tuberculosis Cases (previously documented active).

Reactivations II: Derived from Presumed Pulmonary Tuberculosis, Inactive (not previously documented active tuberculosis cases).

Table 19.

TOTAL ACTIVE CASES OF TUBERCULOSIS
(NEW ACTIVE AND REACTIVATED* CASES)
RATES PER 100,000 AGE-SPECIFIC (ESTIMATED) POPULATION
British Columbia, 1978-1987

AGE-GROUP	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
0 - 14 Years	6.6	7.2	4.9	4.3	6.8	4.4	3.3	3.3	3.9	2.8
15 - 24 Years	10.3	7.1	8.7	8.1	9.8	6.3	11.4	5.6	6.9	6.4
25 - 34 Years	14.3	13.6	12.5	14.0	14.7	10.6	11.6	14.1	9.9	9.2
35 - 44 Years	18.6	20.1	18.0	18.0	15.2	13.4	13.5	9.6	12.0	7.2
45 - 54 Years	21.9	20.4	19.9	19.5	17.5	21.8	16.2	16.5	13.2	13.3
55 - 64 Years	25.3	21.6	22.0	22.4	24.5	24.3	20.7	35.0	12.6	14.0
65 - 74 Years	32.3	27.5	28.5	32.5	28.4	22.3	28.0	18.5	27.5	21.3
75 Years & Over	45.3	35.9	51.5	25.3	36.7	29.6	46.5	36.2	41.2	34.0

* Includes Reactivations I: Derived from Inactive Tuberculosis Cases (previously documented active) and Reactivations II: Derived from Presumed Pulmonary Tuberculosis Inactive (not previously documented active tuberculosis cases).

Table 20. NEW ACTIVE AND REACTIVATED* TUBERCULOSIS CASES BY AGE GROUP EXCLUDING REGISTERED INDIANS, British Columbia, 1982 - 1987

AGE-GROUP	1982		1983		1984		1985		1986		1987	
	New Active	Reacti-vation	New Active	Reacti-vation	New Active	Reacti-vation	New Active	Reacti vation	New Active	Reacti-vation	New Active	Reacti-vation
0 - 14	36	-	18	-	11	1	12	-	11	-	5	1
15 - 24	44	2	27	-	38	3	19	2	23	3	22	-
25 - 44	94	11	69	17	81	10	80	7	67	8	61	5
45 - 54	33	6	46	10	36	6	34	6	31	5	30	4
55 - 64	48	12	38	17	41	12	28	13	26	4	32	5
65 & Over	62	27	55	21	80	29	63	19	86	23	66	22
TOTAL	**317**	**58**	**253**	**65**	**287**	**61**	**236**	**47**	**244**	**43 (15%)**	**216**	**47 (15%**

* Includes Reactivations I: Derived from Inacti - Tuberculosis Cases (previously documented active),
and Reactivations II: Derived from Presumed Pulmonary Tuberculosis Inactive (not previously documented active tuberculosis cases).

Table 21. NEW ACTIVE AND REACTIVATED* TUBERCULOSIS CASES BY AGE GROUP AMONG REGISTERED INDIANS, British Columbia, 1982 - 1987.

AGE-GROUP	1982		1983		1984		1985		1986		1987	
	New Active	Reacti-vation	New Active	Reacti-vation	New Active	Reacti-vation	New Active	Reacti-vation	New Active	Reacti-vation	New Active	Reacti-vation
0 - 14	4	-	8	-	8	-	8	-	12	0	11	-
15 - 24	2	-	3	1	13	-	5	-	5	-	6	-
25 - 44	12	7	15	3	18	4	22	3	23	3	11	2
45 - 54	5	5	5	1	4	1	7	1	1	2	3	5
55 - 64	3	-	7	3	2	2	4	2	4	1	1	1
65 & Over	4	1	3	1	6	1	2	3	7	1	6	2
TOTAL	30	13	41	9	51	8	48	9	52	7 (12%)	38	10 (21%)

* Includes Reactivations I: Derived from Inactive Tuberculosis Cases (previously documented active),
and Reactivations II: Derived from Presumed Pulmonary Tuberculosis Inactive (not previously documented active tuberculosis cases).

	Tuberculosis Principal Cause of Death		Tuberculosis Contributing Cause of Death		Tuberculosis Not Related to Death		TOTAL	
	1986	1987	1986	1987	1986	1987	1986	1987
Notified on death (diagnosis at or after death)	9	10	4	11	-	-	13*	21*
Notified on death but diagnosed during life. (started on treatment or labelled suspect or active TB before death)	4	2	-	-	-	-	4*	2*
Diagnosed and notified before death **	9	3	14	6	7	3	30	12
TOTAL	**22**	**15**	**18**	**17**	**7**	**3**	**47**	**35**

Table 23. **TUBERCULOSIS (ACTIVE) DEATHS BY DIAGNOSIS**
British Columbia, 1986-1987

	Tuberculosis Principal Cause of Death		Tuberculosis Contributing Cause of Death		Tuberculosis Not Related to Death		TOTAL	
	1986	1987	1986	1987	1986	1987	1986	1987
Minimal	1	1	4	2	1	1	6	4
Moderately Advanced	4	5	3	7	3	2	10	14
Far Advanced	9	3	7	1	1	-	17	4
Extent Unknown	-	-	-	1	-	-	-	1
Miliary	7	5	1	2	-	-	8	7
Lymphadenitis	-	-	1	-	2	-	3	-
Pleurisy	-	-	1	1	-	-	1	1
Multiple Sites	-	1	1	1	-	-	1	2
Meningitis	1	-	-	1	-	-	1	1
Abdominal/Mesenteric Adenitis	-	-	-	1	-	-	-	1
TOTAL	**22**	**15**	**18**	**17**	**7**	**3**	**47**	**35**

* Table 22 does not necessarily reflect the year in which this active episode was recorded. Thus the slight discrepancy between this table and Table 11 (Agency Providing Initial Investigation).

** Some of these cases had already been attributed to a preceding year with respect to the active episode (not the record of the death).

Table 24.

TUBERCULOSIS (ACTIVE) DEATHS BY COUNTRY OF BIRTH
British Columbia, 1986-1987

	Tuberculosis Principal Cause of Death		Tuberculosis Contributing Cause of Death		Tuberculosis Not Related to Death		TOTAL	
	1986	1987	1986	1987	1986	1987	1986	1987
Canadian Born								
Native Indians	4	4	1	1	1	2	6	7
Others	8	2	9	9	3	1	20	12
Foreign Born	9	6	5	6	3	-	17	12
Unknown	1	3	3	1	-	-	4	4
TOTAL	22	15	18	17	7	3	47	35

Table 25.

TUBERCULOSIS (ACTIVE) DEATHS BY AGE AND SEX
British Columbia, 1986-1987

		Tuberculosis Principal Cause of Death		Tuberculosis Contributing Cause of Death		Tuberculosis Not Related to Death		TOTAL	
		1986	1987	1986	1987	1986	1987	1986	1987
0 - 24 Years	M	-	-	-	1	-	-	-	1
	F	-	-	-	-	-	-	-	-
25 - 44 Years	M	2	1	-	1	-	-	2	2
	F	1	1	-	1	-	-	1	2
45 - 64 Years	M	5	-	2	3	-	1	7	4
	F	-	-	1	-	-	-	1	-
65 - 84 Years	M	7	5	12	2	4	2	23	9
	F	5	3	-	7	2	-	7	10
85 & Over	M	1	3	-	2	1	-	2	5
	F	1	2	3	-	-	-	4	2
SUB-TOTAL	M	15	9	14	9	5	3	34	21
	F	7	6	4	8	2	-	13	14
TOTAL		22	15	18	17	7	3	47	35

Table 26. **TUBERCULOSIS (ACTIVE) DEATHS BY DIAGNOSIS AND BACILLARY STATUS**
British Columbia, 1986-1987

	NOTIFIED ON DEATH				NOTIFIED ON DEATH BUT DIAGNOSED DURING LIFE				DIAGNOSED AND NOTIFIED BEFORE DEATH			
	Bac.Only		All Active Cases		Bac.Only		All Active Cases		Bac.Only		All Active Cases	
	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987	1986	1987
RESPIRATORY												
Minimal	2	3	2	3	-	-	-	-	4	1	4	1
Moderately Advanced	1	5	1	8	1	1	1	1	8	5	8	5
Far Advanced	1	1	6	2	-	1	-	1	11	1	11	1
Extent Unknown	-	-	-	1	-	-	-	-	-	-	-	-
Miliary	3	4	4	4	2	-	2	-	2	3	2	3
Pleurisy	-	1	-	1	-	-	-	-	1	-	1	-
NON-RESPIRATORY												
Multiple Sites	-	-	-	-	-	-	-	-	1	2	1	2
Meningitis	-	1	-	1	1	-	1	-	-	-	-	-
Not specified	-	1	-	1	-	-	-	-	3	-	3	-
TOTAL	**7**	**16**	**13**	**21**	**4**	**2**	**4**	**2**	**30**	**12**	**30**	**12**

Table 27. INCIDENCE OF ACTIVE TUBERCULOSIS AMONG REGISTERED INDIANS, AGE AND SEX, British Columbia, 1986.

AGE-GROUP	MALE		FEMALE		TOTAL	
	Bacillary Cases	All Active Cases	Bacillary Cases	All Active Cases	Bacillary Cases	All Active Cases
0 - 14	5	5	3	7	8	12
15 - 24	3	5	-	-	3	5
25 - 34	7	7	7	8	14	15
35 - 44	6	7	5	6	11	13
45 - 54	3	3	-	-	3	3
55 - 64	3	3	2	2	5	5
65 - 74	-	1	-	-	-	1
75 & Over	1	1	4	4	5	5
TOTAL	**28**	**32**	**21**	**27**	**49**	**59**
RATES	**83.9**	**96.2**	**63.1**	**81.1**	**73.5**	**88.5**

NOTE: Rates are based on the 1987 estimated population per 100,000.

1987 Population Registered Indians - On & Off Reserve

Males	33,341
Females	33,263
TOTAL	66,604

Table 27A.

INCIDENCE OF ACTIVE TUBERCULOSIS AMONG REGISTERED INDIANS, AGE AND SEX, British Columbia, 1987.

AGE-GROUP	MALE		FEMALE		TOTAL	
	Bacillary Cases	All Active Cases	Bacillary Cases	All Active Cases	Bacillary Cases	All Active Cases
0 - 14	1	5	1	7	1	12
15 - 24	1	1	3	5	4	6
25 - 34	6	7	2	2	8	9
35 - 44	4	4	-	-	4	4
45 - 54	3	4	3	4	6	8
55 - 64	1	1	1	1	2	2
65 - 74	2	2	-	1	2	3
75 & Over	3	3	1	1	4	4
TOTAL	**21**	**27**	**11**	**21**	**32**	**48**
RATES	**59.1**	**76.0**	**30.2**	**57.7**	**44.5**	**66.7**

NOTE: Rates are based on the 1987 estimated population per 100,000.

1987 Population Registered Indians - On & Off Reserve

Males	35,497
Females	36,369
TOTAL	71,866

Table 27B.

INDIAN REGISTER POPULATION BY SELECTED AGE GROUPS AND GENDER FOR REGISTERED INDIANS ON AND OFF RESERVES
1986-1987

AGE GROUP	MALE		FEMALE		TOTAL	
	1986	1987	1986	1987	1986	1987
0 - 14	10,248	10,603	9,574	9,973	19,822	20,576
15 - 24	7,895	8,317	8,076	8,368	15,971	16,685
25 - 34	6,290	6,982	6,884	7,780	13,174	14,762
35 - 44	3,886	4,228	3,824	4,545	7,710	8,773
45 - 54	2,306	2,506	2,170	2,625	4,476	5,131
55 - 64	1,437	1,532	1,409	1,625	2,846	3,157
65 - 74	788	822	768	842	1,556	1,664
75 +	491	507	558	611	1,049	1,118
TOTAL	33,341	35,497	33,263	36,369	66,604	71,866

Table 28. **PRINCIPAL DIAGNOSIS OF ACTIVE TUBERCULOSIS AMONG REGISTERED INDIANS BY BACILLARY STATUS, British Columbia, 1986**

DIAGNOSIS	BACILLARY ONLY[1]		ALL ACTIVE CASES		BACILLARY AS PERCENT OF ALL ACTIVE CASES
	Number	Percent	Number	Percent	
RESPIRATORY					
Primary	11	22.4	16	27.1	68.8
Minimal	15	30.6	18	30.5	83.3
Moderately Advanced	12	24.5	12	20.3	100.0
Far Advanced	5	10.2	5	8.5	100.0
Miliary	1	2.0	1	1.7	100.0
Silico-Tuberculosis	-	-	-	-	-
Pleurisy	1	2.0	2	3.4	50.0
Tuberculoma	-	-	-	-	-
Other Pulmonary	-	-	-	-	-
NON-RESPIRATORY					
Meninges & Central Nervous System	1	2.0	1	1.7	100.0
Intestines & Peritoneum	-	-	-	-	-
Bones & Joints	1	2.0	1	1.7	100.0
Skin & Subcutaneous Cell Tissue	-	-	-	-	-
Lymphatic System	2	4.1	3	5.1	66.7
Genitourinary System	-	-	-	-	-
Multiple Sites & Other Organs	-	-	-	-	-
TOTAL	**49**	**100.0**	**59**	**100.0**	**83.1**

Table 28A. **PRINCIPAL DIAGNOSIS OF ACTIVE TUBERCULOSIS AMONG REGISTERED INDIANS BY BACILLARY STATUS, British Columbia, 1987**

DIAGNOSIS	BACILLARY ONLY[1]		ALL ACTIVE CASES		BACILLARY AS PERCENT OF ALL ACTIVE CASES
	Number	Percent	Number	Percent	
RESPIRATORY					
Primary	1	3.1	12	25.0	8.3
Minimal	7	21.9	8	16.7	87.5
Moderately Advanced	16	50.0	18	37.5	88.9
Far Advanced	3	9.4	4	8.3	75.0
Miliary	1	3.1	1	2.1	100.0
Silico-Tuberculosis	-	-	-	-	-
Pleurisy	-	-	-	-	-
Tuberculoma	-	-	-	-	-
Other Pulmonary	-	-	-	-	-
NON-RESPIRATORY					
Meninges & Central Nervous System	-	-	-	-	-
Intestines & Peritoneum	-	-	-	-	-
Bones & Joints	-	-	-	-	-
Skin & Subcutaneous Cell Tissue	-	-	-	-	-
Lymphatic System	3	9.4	4	8.3	75.0
Genitourinary System	1	3.1	1	2.1	100.0
Multiple Sites & Other Organs	-	-	-	-	-
TOTAL	**32**	**100.0**	**48**	**100.0**	**66.7**

Table 29

ACTIVE TUBERCULOSIS BY HEALTH DISTRICT OF RESIDENCE FOR REGISTERED INDIANS, British Columbia, 1986-1987

HEALTH DISTRICT	NUMBER	
	1986	1987
East Kootenay	-	3
South Okanagan	1	-
South Central	1	4
North Okanagan	0	1
Upper Fraser Valley	3	1
Simon Fraser	1	0
Coast Garibaldi	-	1
Central Vancouver Island	1	3
Upper Island	2	2
Cariboo	10	3
Skeena	11	11
Peace River	1	2
Northern Interior	15	5
Metropolitan Board of Health of Greater Vancouver	12	10
Capital Regional District	1	1
Ex-Province	-	1
TOTAL	**59**	**48**